BSA SERVICE SHEET No. 407

October, 1948
Reprinted Jan., 1957

C10 and C11 Models

RE-ASSEMBLING THE ENGINE

The need for extreme cleanliness cannot be over-emphasized. Parts should be thoroughly cleaned, and all traces of any anti-rust preparations with which new parts may be coated must be removed.

Flywheels

If the big-end assembly is to be renewed it is as well to check the weights of the new components against those which have been removed. A slight variation in weights is inevitable, but provided that the discrepancy does not exceed 1½ ozs. no further action need be taken. This tolerance should not be exceeded since when first assembled the flywheels were balanced to suit the original parts, and the balance may be adversely affected if the weights of the new components differ considerably from those of the original ones.

The driving side flywheel should now be fitted to the crankpin (this is the side with the keyway) and the nut tightened up by hand. Fit the timing side flywheel and again tighten the crankpin nut by hand.

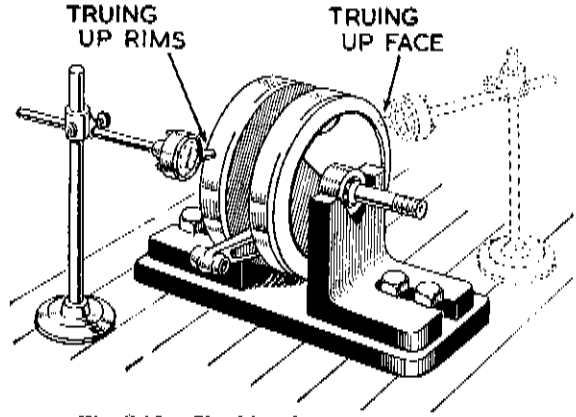
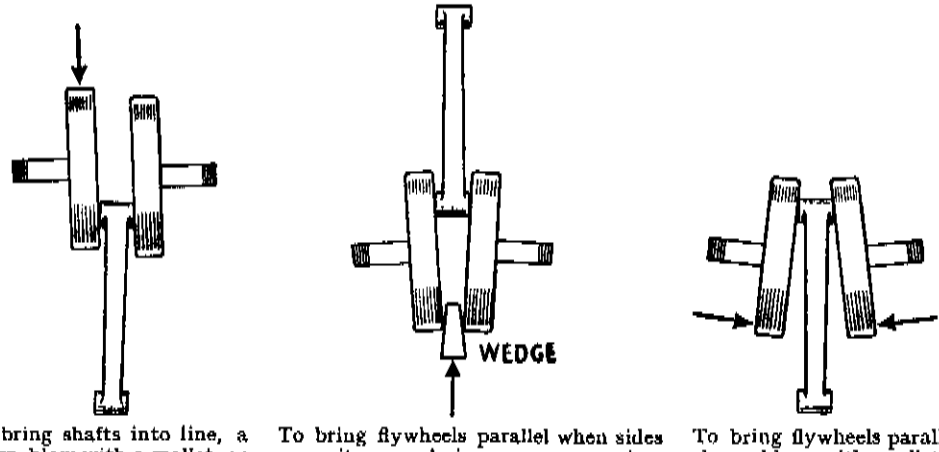


Fig. C.19. Checking flywheel alignment.

In order to tighten the crankpin nuts properly, the whole flywheel assembly must be held rigidly. For this purpose it should be mounted in a large vice (fitted with lead clamps) with the driving side flywheel uppermost. If a large enough vice is not readily available, an alternative method is to fix two $\frac{5}{16}$in. diameter posts rigidly to the bench in a vertical position, the distance between their centres being $3\frac{7}{8}$in. Midway between the posts a hole of 1in. diameter should be bored in the bench to receive the mainshaft. The flywheel assembly is mounted on these posts so that they pass through the holes bored in the flywheels, and the driving side flywheel should be uppermost. Tighten the crankpin nut very firmly, using a tubular extension to the spanner as when dismantling, and punch over the edge of the crankpin with a centre punch to lock the nut.



To bring shafts into line, a sharp blow with a mallet on **timing side** flywheel (indicated by arrow).

To bring flywheels parallel when sides opposite crankpin are converging, insert wedge as shown and deal sharp blow with mallet.

To bring flywheels parallel a sharp blow with mallet on flywheel rims on opposite side to crankpin.

Fig. C.20. Method of correcting flywheels out of alignment. Note that above illustrations are exaggerated.

Now turn the assembly over, so that the gearside flywheel is on top and tighten the crankpin nut lightly. The grub screw in the end of the crankpin must be riveted over or centre-punched to prevent its unscrewing. If it unscrews, serious damage may result to the engine. Check that the side clearance of the connecting rod in the flywheels does not exceed .012in. and is not less than .010in.

The flywheels will now be aligned only very approximately and further steps must be taken to ensure that the wheels are aligned as true as possible. Two driveside bearings Part No. 24-732 should be fitted to the mainshaft and the latter mounted on vee-blocks. The flywheels must be trued up, both on faces and rims, for which purpose a dial micrometer is necessary (Fig. C.19), and after the wheels are trued to within at least .005in., tighten the timing side crankpin nut fully. A mallet or lead hammer applied to the flywheels will provide a sufficiently heavy blow for final truing, and will not harm the flywheels (Fig. C.20). The shafts should be finally trued to within .002 in. maximum.

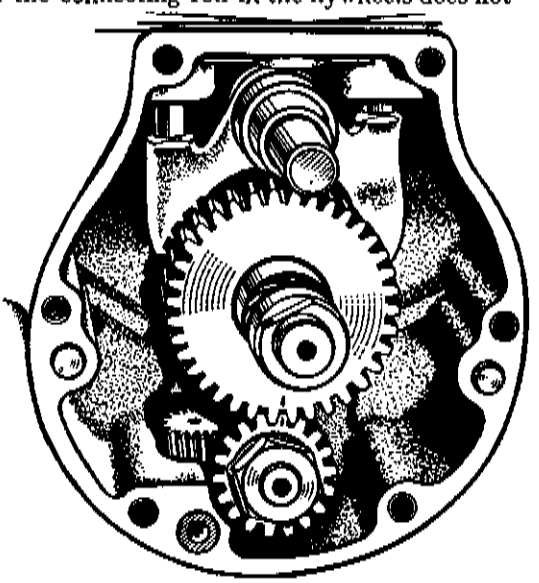


Fig. C.21. Valve-timing gears.

All parts having been cleaned, they must be perfectly free from paraffin, grit or other foreign matter, and all traces of old jointing compound and washers must be removed.

Fit the oil flinger with the boss towards the flywheel; the action of the vanes is to throw the oil away from the bearing.

Replace the distance washer between oil flinger and bearing.

Fit the drive side crankcase half and, after coating the mating portion with jointing compound, replace the gear side half. The two halves must be perfectly mated and the flywheels must rotate freely as the halves are bolted up.

Replace the oil pump spindle and its retaining pin. Fit the oil filter and cover plate at the base of the sump, making sure that the lock washers are replaced under the nuts.

Having bolted up the crankcase, fit the timing pinion key and pinion, apply the lockwasher and nut and turn over the lockwasher after securing the nut.

Fit the cam followers, and also the tappets in the case of the C10, and replace the camshaft, ensuring that the mark on the camshaft pinion meshes with the mark on the timing or mainshaft pinion. (Fig. C.21).

Apply clean engine oil to the pinions and cams.

Now replace the small plain washer in the pump spindle locking plunger hole, and fit the inner timing cover, using a new joint washer coated with cement, and ensure that the star washers are fitted to the two long screws. Tighten the screws down a little at a time to ensure that the cover is not distorted.

Re-fit the dynamo, ensuring that the cork washer is in position, and replace the dynamo drive sprocket and chain.

Fit the camshaft nut washer, turning over the washer to lock the nut.

Now adjust the dynamo chain, and securely tighten the dynamo. Pack the chain housing with grease.

Refit the outer timing cover again, using a new joint washer and cement, and tighten the screws evenly.

Assembly from this point will be the same as after decarbonising.

B.S.A. MOTOR CYCLES LTD.
Service Dept., Birmingham, 11
Printed in England.

U/A1793